October 26, 2009

Steve Healy
Environmental Protection Agency
Office of Transportation and Air Quality
Certification and Compliance Division
2565 Plymouth Road
Ann Arbor, MI 48105

Dear Mr. Healy,

Please find attached the updated On-Board Diagnostics II System Certification Document for the 2009 Model Year Dodge pick-up truck with a 6.7L Cummins diesel engine. Cummins is not asking for an approval of this certification document. This OBD system is used in the following test groups: 9CEXD06.78VV, and 9CEXD06.78WV.

This OBD certification submission includes an updated OBD certification document.

CBI / Ex. 4

CBI / Ex. 4 An electronic copy of this cover letter is in the file "2009-10-26 EPA Cover Letter and Attachment.doc"

Please let me know if you have any questions by contacting me at (812) 377-0625 via telephone or at hwei.jen.kachler@cummins.com via email or Mr. Mark Stepper at (812) 377-5729 via telephone or at m.r.stepper@cummins.com via email.
Thank you for your assistance.

Sincerely,

Hwei Jen Kachler
Senior Engineer
On Board Diagnostics & Service Information Certification
Product Environmental Management

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Attachments:

1. File name “MY09.5 Pickup DH_D1 OBD Certification Document rev1.zip”
2. File name “2009-10-26 EPA Cover Letter and Attachment v3.doc”
3. File name ” PowerPoint 10 26 2009.zip”
    a. File name “P040B, P0401, P042E rev1.ppt”
    b. File name “ARB_P0488_Monitor_Change_Rev2.ppt”
    c. File name “P0087_P000F_Improvements.ppt”
    d. File name “P2563 VGT Span Check Phase 7 Rev2_updated.ppt”
    e. File name “P2457 Cooler Efficiency Monitor Change Rev1.ppt”

Cc:
Cummins: Mark Stepper, Ben Zwissler, Paul McAvoy, Ravinder Singh, Shanila Bhatty.
EPA: Ted Trimble, Chris Nevers, Robert Peavyhouse.

1.0 Significant Changes from the Previous Submittal

1.1 Major update:

- VGT Span Check (P2563)
  - This diagnostic was modified to address VGT position offset which cause progressive damage to the system. This new algorithm will ensure the fault to be set and MIL to be latched sooner than the previous algorithm. (See section 4 and 6 for update in the certification document)
  - Changed the lower region of the forbidden zone from 12% to 9%.
  - Changed the upper command value from 92% to 94%.
  - Added lower position malfunction criteria to show low-end responses to be less than 4%.
- EGR Cooler Efficiency Monitor (P2457)
  - Revised diagnostic which was implemented in April 2009. EGR Cooler Efficiency is causing false failures in fleet validation at higher vehicle speeds with steady state conditions.
  - EGR Valve Protection Strategy is a new operating feature disclosed in updated AECD document. (Please see attached "P2457 Cooler Efficiency Monitor Change Rev1.ppt and the updated AECD document)
  - Enable Conditions:
    - Delay counter after EGR Valve Protection ends (counter = 100 sec).
    - EGR Flow was changed to > 0.203 LB/MIN
  - Malfunction Criteria:
    - Added vehicle speeds for EGR Orifice temperature threshold:
      - For vehicle speed < 50 MPH
      - For vehicle speed >= 50 MPH and <60 MPH
      - For vehicle speed >= 60 MPH and < 70 MPH
      - For vehicle speed >= 70 MPH

1.2 Minor updates:

- Fuel Rail Pressure Too High (P0088)
  - Added P0088 to map to the high pressure deviation logic of P0087 for easy service diagnoses. (See section 4 for update in the certification document)
- High Pressure Common Rail Dump Valve (P000F)
  - To improve P000F by changing the lower malfunction threshold from 50000 MPa to 30000 MPa, so that the fault can be set sooner and will not cause also failures of P0087. (See section 4 for update in the certification document)
- Exhaust Gas Recirculation Leak (P042E)
  - To modify one of the enable conditions to ensure this diagnostic runs more often and can detect leady EGR valves with lower valve gaps. (See section 4 for update in the certification document)
  - Changed EGR Valve Gap from 36% to 29%.
- Exhaust Gas Recirculation Leak (P042E)

- Added "Exhaust Oxygen Control" is not active" to be one of the enable conditions. (See section 4 for update in the certification document)
- This new Exhaust Oxygen control strategy is covered in the updated AECD document.

- EGR Low Flow (P0401)
  - Added abort conditions to avoid failures of the diagnostic (See section 4 for update in the certification document)
    - VGT Errors (P2563) is active.
- EGR Orifice Temperature Sensor Low Check (P040B)
  - Added one enable condition to ensure that this diagnostic only run during deNOx operation mode. (See section 4 for update in the certification document)
- Intake Manifold Pressure Performance (P0106)
  - Added the following abort conditions to avoid sensor input failures (See section 4 for update in the certification document):
    - Intake Air Throttle Errors (P0487, P0488) is active.
- Intake Air Throttle (P0488)
  - Modified the fault logic to ensure better detection of the failed and intermittent Intake Air Throttles (See section 4 for update in the certification document).
  - Change the duration from 15 to 30 seconds.
  - Added the duration to last for a period of 100 seconds

1.3 **Change that did not affect the certification document:**

- Turbo Speed Rationality (P2579)
  - Changed from continuous monitor to non-continuous monitor so that two-trip MIL functionality can work properly.
  - This change addressed a J1699 testing issue Turbocharger speed sensor in-range DTC where pending code is not cleared after repair.

1.4 **Documentation Clean Up which do not affect the actual calibration:**

- Intake Manifold Pressure Performance (P0106)
  - .Added abort conditions
    - Intake Manifold Pressure Sensor OOR Errors (p0107, P0108) is active.
    - Turbo Speed Errors (P2580, P0049, P2579) is active
    - Ambient Air Temperature Errors (P1193, P1192, P1191) is active
    - Ambient Air Pressure Errors (P2229, P2228, P2227) is active.
    - Intake Manifold Temperature Errors (P0113, P0112, P0111) is active.
    - Mass Air Flow Errors (P0101, P0102, P0103) is active.
    - VGT Errors (P2262, P226B) is active.
  - Added enable conditions
    - Turbo Speed > 0.008 KRPM
    - Turbo Speed < 100 KRPM

- EGR Low Flow (P0401)
  - Added abort conditions
    - EGR Valve Status is not Normal
    - Mass Air Flow Sensor OOR and Performance Errors (P0101, P0102, P0103) is active
    - Exhaust Manifold Pressure Sensor OOR and Performance Errors (P0471, P0472, P0473) is active.
    - Coolant Temperature Sensor OOR and Performance Errors (P0116, P0117, P0118) is active.
    - Intake Manifold Pressure Sensor OOR and Performance Errors (P0106, P0107, P0108) is active.
    - VG Errors (P00AF, P003A, P2262)
    - EGR High Flow Error (P0402) is active.

2.0 **Information Not Currently Available**

Cummins plans to add the remaining flow charts gradually in future model years.

3.0 **Deficiencies and Concerns from the Previous Model Year Engine**

Cummins includes all of the following California identified Deficiencies and Concerns for your information.

3.1 Deficiencies (E-06-142, E-06-184)

Un-resolved:

- NOx Adsorber Monitoring (E-06-184)
  - Cummins has implemented improvements to failure detection robustness in this submission. This item remains a deficiency. Cummins plans to resolve this deficiency for the V-MY 2010.
- Upstream Oxygen Sensor Monitoring (E-06-184)
  - Cummins is investigating methods to resolve this deficiency in a future model year with targeted implementation by V-MY2009.5.
- Downstream Oxygen Sensor Monitoring (E-06-184)
  - Cummins is investigating methods to resolve this deficiency in a future model year with targeted implementation by V-MY2009.5.

Resolved:

- Engine Cooling System Performance Monitor (E-06-142)
  - Cummins has resolved this deficiency for the E-MY08 products.
- Non-Methane Hydrocarbon (NMHC) Catalyst Monitoring (E-06-184)
  - Cummins has resolved this deficiency for the MY08 products per April 3, 2007 conference call meeting.
- Exhaust Gas Temperature Sensor Monitoring (E-06-184)
  - Cummins has resolved this deficiency for the MY08 products
- Charging System Monitoring (E-06-184)
  - Cummins has resolved this deficiency for the MY08 products .
- Calibration Identification Number (CAL ID) Reporting (E-06-184)
  - Cummins has resolved this deficiency per March 13, 2007 conference call meeting.
- Exhaust Gas Recirculation (EGR) Monitoring (E-06-184)

- Cummins has resolved this deficiency per August 19, 2008 conference call meeting. This fixed will be implemented in the MY09.5 V2 Running Changes.

- Retroactive Deficiency: EGR Cooler Efficiency Monitor
  - Cummins has resolved this deficiency in MY09 Running Change calibration in February 2009

3.2 Concerns

Un-resolved:

- Temperature Sensor Rationality Monitoring(E-06-132)
  - Cummins plans to resolve this concern in the V-MY2009.5 products.
- Fuel Rail Pressure Sensor Monitoring (E-06-132)
  - Adding the Idle Speed Control System Monitoring (P0505 MIL), to address this concern, with enable criteria based upon engine speed. Remaining ARB concerns relative to a failure criteria adjustment based on battery voltage to be addressed in the future model year per discussion on Charging System Deficiency removal. Cummins plans to resolve this concern in the V-MY2009 products. Cummins plans to present a PowerPoint presentation and reviewed it with ARB in April 2008.
- Fuel System Fault Codes (E-06-132)
  - Cummins has resolved this concern for the MY2008.5 products; however, Cummins is expected to implement the standardized DTC in V-MY2010 products.
- Fuel Injector Tolerance Coding (E-06-132)
  - Cummins will submit a plan to address this concern prior to the V-MY2013.
- Exhaust Gas Temperature Sensor Monitoring (E-06-132, E-06-184)
  - Concern stated in E-06-132 with 196 accumulated miles required for fault detection. Cummins has reduced malfunction criteria to 50 miles for this submission. Cummins plans to resolve this concern in the V-MY2010 products.
- Oxygen sensor Fault Codes (E-06-187)
  - Cummins plans to resolve this concern pertaining to separate fault codes in the V-MY2010 products in conduction with resolving oxygen sensor deficiency.
- Monitoring Conditions (E-06-187)
  - Cummins plans to resolve this concern in the V-MY2009.5 products.

Resolved

- Vehicle Speed Sensor Monitoring (E-06-132)
  - Cummins has resolved this concern in the V-MY2009.5 products.